

BINKERD ENVIRONMENTAL

664 HILLS POINT ROAD • CHARLOTTE, VERMONT 05445 • (802) 425-4939 FAX (802) 425-5939

**Environmental Site
Assessment
Related to UST Closure
at
Charlotte Fire & Rescue
SMS Site #98-2668**

#98-2452

Prepared for:
Charlotte Fire & Rescue Services, Inc.
170 Ferry Road
Charlotte, VT 05445

Prepared by:
BINKERD ENVIRONMENTAL
664 Hills Point Road
Charlotte, VT 05445
(802) 238-6686

BINKERD ENVIRONMENTAL - Project Number 9902

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SUMMARY

On 30 October 1998 Griffin International, Inc. conducted a closure inspection of two underground storage tanks (UST's) at the Charlotte Fire & Rescue facility in Charlotte, Vermont. After review of Griffin's closure report, the Sites Management Section (SMS) of the Vermont Agency of Natural Resources, Waste Management Division determined that additional work is necessary at the site to determine the severity of the contamination (SMS, 13 January 1999) and listed several tasks that should be accomplished.

Since a third UST remained on site and was planned to be removed in the spring of 1999, Mr. Christopher W. Davis, Chief, Charlotte Fire Department, asked Mr. Bob Butler of the SMS if the tank closure report for the third UST and the environmental site assessment work requested in the 13 January 1999 letter could be combined. This was agreed to with the stipulation that water supply wells on adjacent properties be sampled and analyzed as soon as possible.

This report documents the results of the environmental site assessment conducted to satisfy the tasks detailed in the SMS's letter of 13 January 1999 and the 1000 gallon UST closure inspection.

Four monitoring wells were installed and sampled. No hydrocarbon contamination was detected by laboratory measurements in the monitoring wells down gradient of the removed UST's. Surface water is not contaminated with hydrocarbons as documented by the surface water sample of the pond. The water supply wells on the adjacent properties did not show any hydrocarbon contamination. Ten soil samples were screened in field with a photoionization detector (PID) when the 1000 gallon tank was removed; all PID field screening readings were below 10 ppm. Two of eight soil samples that were collected and screened in the field using a PID by Griffin International, Inc. on 30 October 1998 were 34.2 and 35.8 ppm; the other six soil samples were less than 10 ppm.

Information in this report describes the physical characteristics, including ground water flow paths, at the site. Based on the site characteristics documented in this report and since no contamination was detected by laboratory measurements in four strategically placed monitoring wells, a pond surface water sample, and two water supply wells, it is the opinion of **BINKERD ENVIRONMENTAL** that no additional monitoring or remediation at this site is necessary.

1. INTRODUCTION

This report was prepared by **BINKERD ENVIRONMENTAL** for Charlotte Fire & Rescue Services, Inc. The principal representative for the Charlotte Fire & Rescue on environmental issues for this project is Mr. Christopher W. Davis, Chief, Charlotte Fire Department.

On 30 October 1998 Griffin International, Inc. (Griffin) conducted a closure inspection of two underground storage tanks (UST's) at the Charlotte Fire & Rescue facility in Charlotte, Vermont (Site): UST #1 - 550 gallon single walled steel tank used to store gasoline; and, UST #2 - 550 gallon single walled steel tank used to store diesel fuel. These two UST's were located end to end in a common tank cavity located on the northwest side of the Charlotte Fire & Rescue building at 170 Ferry Road.

According to Griffin's report the tanks were found to be in good condition. No rust, pitting, scaling or holes were identified on any of the removed tanks. All associated piping was reported by Griffin International to be in good condition, Appendix A.

Soils were screened along the sidewalls of the excavated pit by Griffin International's on site technician. Griffin summarized these side wall readings as ranging from 0.5 to 35.8 ppmv (parts per million volume). There was no free product observed during the excavation although a "fine sheen" on the water was noted by Griffin. Ground water was reported by Griffin International at four feet below grade.

After review of Griffin's closure report, the Sites Management Section (SMS) of the Vermont Agency of Natural Resources, Waste Management Division, determined that additional work is necessary at the site to determine the severity of the contamination (SMS, 13 January 1999) and listed several tasks that should be accomplished. The letter sent by the SMS to Charlotte Fire & Rescue is in Appendix B.

A third UST, a 1000 gallon single walled steel tank used to store #2 heating oil, was planned to be removed after the winter heating season. After receiving the 13 January letter from the SMS, Mr. Davis asked Mr. Bob Butler of the SMS if the environmental site assessment

(ESA) requested in the 13 January 1999 letter could be delayed until the third tank was removed and evaluated. This was agreed upon with the stipulation that adjacent water supply wells be sampled and analyzed as soon as possible.

BINKERD ENVIRONMENTAL was selected on 4 April 1999 to conduct the ESA and the closure report for the 1000 gallon UST that was used to store #2 fuel oil to heat the Fire & Rescue building. The 1000 gallon tank was removed on 7 May 1999. Since no contamination was found and since this was a UST less than 1100 gallons used for heating oil, the SMS was asked if the tank closure report for the 1000 gallon tank and the ESA requested in the SMS letter of 13 January 1999 could be combined in the same report. This was agreed to with the condition that the UST tank pull forms be completed and sent with the report. A copy of the closure form is in Appendix D.

This report documents the results of the environmental site assessment conducted to satisfy the tasks detailed in the SMS's letter of 13 January 1999 and the 1000 gallon UST closure report. A site history has been completed by searching Charlotte Town land use records and by conducting interviews of personnel at the Charlotte Fire & Rescue. A search for sensitive receptors was completed and documented. Three groundwater monitor wells down gradient from the removed UST's and one up gradient were sampled for groundwater quality and analyzed using U.S. EPA Method 8021B. A surface water sample was collected from a pond north of the site and analyzed using U.S. EPA Method 8021B. The monitoring well down gradient of the #2 fuel oil tank was also analyzed for total petroleum hydrocarbons (TPH) diesel range organics (DRO) by U.S. EPA method 8015. Finally, water samples from the closest drinking water wells were sampled and analyzed using U.S. EPA Method 8021B and U.S. EPA method 8015 GRO for total petroleum hydrocarbons (TPH) gasoline range organics.

2.0 SITE BACKGROUND

2.1 Site Location

To reach Charlotte Fire & Rescue from Route 7 south, drive to Ferry Road in Charlotte and turn right. Drive 0.17 miles west on Ferry Road and Charlotte Fire & Rescue station is on the right, Figure 1.

2.2 General Site Description

The Charlotte Fire & Rescue station is located in a commercially zoned area of Charlotte, Vermont. A U.S. Geological Survey map of the SITE is in Figure 2, a soil survey map is in Figure 3, and a copy of the property map for the Town of Charlotte is in Figure 4. Charlotte Fire & Rescue occupies 1.35 acres (the site). The site is occupied by a relatively large vehicle bay building that houses the fire trucks and ambulance. Attached is the training and bunk rooms. Both buildings are built on slabs and connected by an enclosed hallway.

To the west is a residence occupied by Stephen & Lorie Gaboury. The surface water supply well for the Gaboury's is in their front yard near Ferry Road. North of Fire & Rescue station is a property owned by George and Marilyn Richardson. On the east side of their property north of the site is a pond; a garage is toward the west. The garage has no basement and is used for storage of antique cars and trucks. Immediately to the west of the site is a vacant strip of land. Next to this strip of land is a slight hill and an old farm house that is now the Charlotte Day Care Center, Inc. The water supply well for the Charlotte Day Care Center is in the basement. The southern border of the site is Ferry Road. Across the road is the Town Hall, Town Library, and U.S. Post Office. A residence is next to the post office.

2.3 Site History

2.3.1 Ownership History

The site history was documented by interviews with the Town Clerk, land records at Charlotte Town Hall, and site visits. The site has been used as a fire and/or fire and rescue station since 1956 and is owned by Charlotte Volunteer Fire Department. Prior to that time this piece of land was described as part of an 84 acre farm, Table 1.

Table 1. Recorded Land Title Records					
Property Address: 170 Ferry Road, Charlotte, V 05445					
Records Located at: Charlotte Town Hall					
Search Conducted by: Roger C. Binkerd					
Date of Search: 8 June 1999					
Book	Pages	Grantor	Grantee	Date	Notes
27	285	Russell & Marion Williams	Charlotte Vol. Fire Dept.	5/12/56	
25	423-424	Sara & Earl Ford	Russell & Marion Williams	5/12/46	

2.3.2 Manufacturing History

The property occupied by the Charlotte Fire & Rescue was never used for manufacturing purposes.

2.4 Previous Site Investigations

A site investigation was conducted by Griffin International, Inc. on 30 October 1998 related to the removal and closure of the two 550 gallon underground storage tanks. A complete copy of Griffin's closure report is in Appendix A.

3.0 REGIONAL ENVIRONMENTAL SETTING

3.1 Discussion of Site Surficial Geology

Figure 2 is a copy of the U.S. Department of the Interior - Geological Survey Map. Figure 2 depicts the latitude and longitude of the site of the UST. The contour interval on this map is 5 meters relative to National Geodetic Vertical Datum of 1929. Additional ground surface contours are depicted in Figure 5. As indicated by the contours, the site is relatively flat with a slight downward slope to the north. Relatively deep drainage ditches are located on the west and north borders of the property and a shallower drainage ditch is along the east border. Surface water and shallow groundwater that collects in these ditches discharge to a pond north of the property.

According to the "Soil Survey of Chittenden County, Vermont, 1974" the soils covering the entire site of the Charlotte Fire & Rescue property are "Cv" Covington silty clay. Adjacent to the west is "PaB" Palatine silt loam's, 3 to 8 percent slopes. This is the site of the Charlotte Day Care Center building.

3.2 General Discussion of Site Hydrogeology

The primary aquifer of concern associated with the Charlotte Fire & Rescue property is the unconfined surficial aquifer. Groundwater flow in the surficial aquifer is controlled, among other things, by the physical characteristics of the aquifer (material type and porosity, etc.), the thickness, areal extent, and configuration of the aquifer, by the amount and type of recharge to the aquifer, and by the presence of areas where discharge can occur. In shallow water table aquifers, the surficial topography can also be a significant controlling feature in groundwater flow.

The two major physical characteristics of an aquifer that affect groundwater flow are the type of soil materials (affecting hydraulic conductivity) and the porosity of soil materials (affecting groundwater velocity). Hydraulic conductivity describes the ability of the aquifer to transmit fluid and is expressed in units of length/time. The presence of heterogeneities within the aquifer such as bedding planes or clay layers significantly affect groundwater flow by creating either preferential pathways or barriers to flow. The groundwater flow velocity is the actual velocity of the groundwater flowing through the aquifer. In a shallow water table

(unconfined) aquifer such as at the Charlotte Fire & Rescue property, the velocity is affected by the gradient (the amount of dip) of the water table surface and by the porosity.

To determine the direction of groundwater flow in a shallow unconfined aquifer, the elevation of the groundwater levels must be measured in shallow wells. These measurements are located on a map, and from them, the topography of the water table is estimated and water table contours generated. Water table contours are imaginary lines connecting equal water elevations that show the estimated topography of the water table. The direction of groundwater flow is then estimated from the map as perpendicular to the water table contours. Groundwater movement in a shallow unconfined aquifer is from high hydraulic head (the water table elevation in an unconfined aquifer) to low hydraulic head.

3.3 Specific Discussion of Site Hydrogeology

At the site groundwater flows north toward the pond. This conclusion on the direction of groundwater flow is inferred from site topography and measurements of groundwater elevations from four monitoring wells on site (see section 4.2).

4.0 CONTAMINATION REGIME

4.1 Contaminants of Concern

The primary contaminants of concern (COC) at the Charlotte Fire & Rescue site are related to gasoline, diesel fuel and #2 heating oil. Specific compounds of concern are benzene, toluene, ethylbenzene, total xylenes (collectively referred to as BTEX). These COC fall into the general category of aromatic hydrocarbons.

4.2 Contaminant Sources

The possible sources of hydrocarbon contamination in the soils are the three removed underground storage tanks, associated piping to fill the tanks, pipes to the gas pumps, and surface spills related to filling the tanks and filling vehicles at the pumps.

It is unlikely that the tanks leaked at all during the 14 to 25 years of service. The tanks were found to be in good condition; no leaks from the tanks were observed.

Small spills that accumulated over time are most likely responsible for the contaminated soil observed near the UST during the closure inspection by Griffin on 30 October 1998.

5.0 FIELD INVESTIGATION RESULTS

5.1 Subsurface Soils

The subsurface soils in the vicinity of the removed gasoline and diesel tanks are described by Griffin International, Inc., Appendix A. Soils were screened along the side walls of the excavated pit by Griffin International's on site technician. Griffin International summarized these side wall readings as ranging from 0.5 to 35.8 ppm (parts per million); no information on the precise locations of the side wall measurements were included in the report. Additional information was requested of Griffin by **BINKERD ENVIRONMENTAL** to learn more about the distribution of soil PID readings. This information was received by Mr. Davis on 23 February 1999 and is included in Appendix A. Eight soil samples were collected for field screening: six from the side walls and two from under the tanks. Of the eight soil PID readings four were below 1.1 ppm (parts per million) and two readings were below 9.4 ppm. The remaining two soil samples had PID readings of 34.2 and 35.8 ppm. One of these soil samples (35.8 ppm) was collected from under the removed gasoline tank at the north end of the excavation and the other was from the adjacent west side wall. The tank closure report by Griffin dated 3 November 1998 said that the highest PID reading was under the diesel tank which conflicts with the information sent to Mr. Davis on 23 February 1998.

On 7 May 1999 when the 1000 gallon UST was removed ten soil samples were collected for on-site screening with a photoionization detector (HNU Model DL 101). Results of four soil samples from side walls varied from 0.8 ppm to 4.1 ppm. Soils samples beneath the UST's were 0.4 and 0.7 ppm. Soil samples from two soil piles removed from the excavation were 0.8 and 3.0 ppm. The hole was filled with clean sand to grade.

5.2 Groundwater

5.2.1 Monitoring Wells

Four one inch diameter monitoring wells were installed on 7 May 1999. Each monitoring well is about 5 feet below ground surface. Slots in the 1-inch diameter PVC extend to within 6 inches of the surface. These four wells were installed by first pushing a one inch clean hollow steel pipe into the ground to make a bore hole. After the steel pipe was removed the slotted PVC pipe, with end cap, was pushed into the borehole, capped on top and covered with a 2 ½ inch PVC pipe for protection. The top of PVC of each monitoring well was

surveyed to determine their elevations. A bench mark on a manhole in front of the building was used for vertical control.

Depth to groundwater was measured on 16 May 1999. The depth to water varied from 39 ½ inches to 53 ¾ inches below top of PVC which was near ground surface. Water elevations were determined by subtracting the depth to groundwater in each well from the top of PVC well elevation. Groundwater elevations were then plotted and contoured. Lines representing equal groundwater elevations were drawn and are depicted in Figure 6. Arrows representing groundwater flow direction are drawn perpendicular to the groundwater contours. As indicated in Figure 6, groundwater flows toward the north-northeast toward the pond.

Analytical chemistry results for the four monitoring wells are tabulated in Table 2, and a complete analytical report is included in Appendix C; **as indicated no compounds were detected above the method detection levels.**

5.2.2 Water Supply Wells

Water supply wells on adjacent properties were sampled on 13 April 1999. Samples were collected from the kitchen tap in the residence owned by Stephen & Lorie Gaboury which is west of the site. This sample is labeled "Jason." A second sample was collected from the kitchen tap of the Charlotte Day Care Center east of the site.

Analytical chemistry results are tabulated in Table 2, and a complete analytical report is included in Appendix C; **as indicated no compounds were detected above the method detection levels.**

5.3 Surface Water

Surface water on the site consists of various drainage ditches that all drain to the pond north of the site. Surface drainage is generally toward the north. A surface water sample was collected from the drainage ditch just before it discharged to the pond.

Analytical chemistry results are tabulated in Table 2, and a complete analytical report is included in Appendix C for the "pond" sample; **as indicated no compounds were detected**

above the method detection levels.

Table 2. Summary of water quality, Sampled on May 16 & 17, 1999 (MW-1 - Pond)
and April 13, 1999 (Charlotte Childrens Center and Jason).

Compound	Benzene	Toluene	Ethyl- benzene	Total Xylenes	MTBE	1,3,5- Trimethylbenzene	1,2,4- Trimethylbenzene	Naphthalene	TPH
Sample ID	Concentration (µg/l)								
MW-1	<1	<1	<1	<1	<10	<1	<1	<1	na
MW-2	<1	<1	<1	<1	<10	<1	<1	<1	na
MW-3	<1	<1	<1	<1	<10	<1	<1	<1	<400
MW-4	<1	<1	<1	<1	<10	<1	<1	<1	na
Pond	<1	<1	<1	<1	<10	<1	<1	<1	na
Charlotte Childrens Center	<1	<1	<1	<2	<2	<1	<1	<5	<100
Jason	<1	<1	<1	<2	<2	<1	<1	<5	<100
VGES	5.0	1,000	700	10,000	40	4.0	5.0	20	na

Notes:

1. VGES - Vermont Groundwater Enforcement Standard.
2. na - VGES not established.
3. na - not analyzed for this parameter.
4. All samples were analyzed for VOCs via US EPA Method 8021D.
5. The sample collected from MW-3 was analyzed for TPH as fuel oil via U.S. EPA Method 8015-DRO.
6. Samples collected from "CCC" and "Jason" were analyzed for TPH as gasoline range organics via U.S. EPA Method 8015-GRO.

6.0 POTENTIAL RISK AND POTENTIAL RECEPTORS

6.1 Human Health

In general, to have potential risk to human health three factors must be present: there must be a contaminate(s); a pathway(s); and, receptor(s).

Contaminate: At the Charlotte Fire & Rescue site groundwater obtained from four monitoring wells did not detect any compounds analyzed for using method 8021B. The water sample of the pond and the sample from the two closest groundwater supply wells did not have any hydrocarbon contamination. Sixteen of eighteen soil samples screened in the field by Girffin and **BINKERD ENVIRONMENTAL** had PID readings less than 10 ppm; the remaining two soil samples had readings of 34.2 and 35.8 ppm.

Pathways: One possible route of exposure is by groundwater transport. The water table is shallow and the groundwater flow is apparently toward the north.

The second possible pathway is via the air. Contamination in the vadose zone (above the water table) of the subsurface could migrate directly to the overlying air or into basements. There are no basements to any of the structures on site and all adjacent property owners are not in the pathway.

Receptors: The possible receptors are the volunteers and employees at the Charlotte Fire & Rescue, and other public persons who occasionally use the property.

The chain (contaminate - pathway - receptors) is broken since a contaminate was not detected in laboratory measurements. This break in the chain eliminates the risk to human health.

6.2 Environmental Risk

The potential environmental risk is to the unconfined surficial aquifer and soil contamination near the removed UST's. No contamination was detected in the monitoring wells down

gradient of the removed UST's. Surface water is not contaminated as documented by the surface water sample of the pond. The only contamination detected on site was in soil samples screened in the field using a PID.

7.0 IDENTIFICATION OF DATA GAPS AND DATA NEEDS

7.1 Contaminate Fate and Transport

Contaminate fate and transport at this site is sufficiently understood that no additional information on fate and transport is necessary. This conclusion is based on the following facts:

- ◆ groundwater elevations from four on site monitoring wells documented the direction of groundwater flow;
- ◆ the direction of groundwater flow is consistent with surface features consisting of general topography, drainage ditches and the pond north of the site;
- ◆ the 550 gallon UST's used for gasoline and diesel fuel storage did not leak and as documented in the closure report by Griffin International; therefore, there was no major release of gasoline or diesel fuel to the environment;
- ◆ groundwater in MW-2 down gradient of the gasoline and diesel fuel tanks did not contain any hydrocarbon contamination;
- ◆ the 1000 gallon UST used for #2 fuel oil for heating the fire and rescue building did not leak and as documented in this report; therefore, there was no major release of #2 fuel oil to the environment;
- ◆ groundwater in MW-3 down gradient of the 1000 gallon UST did not contain any hydrocarbon contamination;
- ◆ the water sample from the pond did not contain any hydrocarbon contamination; and,
- ◆ water samples from adjacent water supply wells did not contain any hydrocarbon contamination.

7.2 Risk to Human Health and the Environment

There does not appear to be any risk to human health or the environment. This conclusion is based on the limited distribution of contamination observed on site from PID field screening results of soils. Drinking water samples obtained from shallow groundwater wells on adjacent properties contained no hydrocarbon contamination. There are no basements on site. The pond has not been impacted as documented by laboratory measurements.

7.3 Remediation and Monitoring

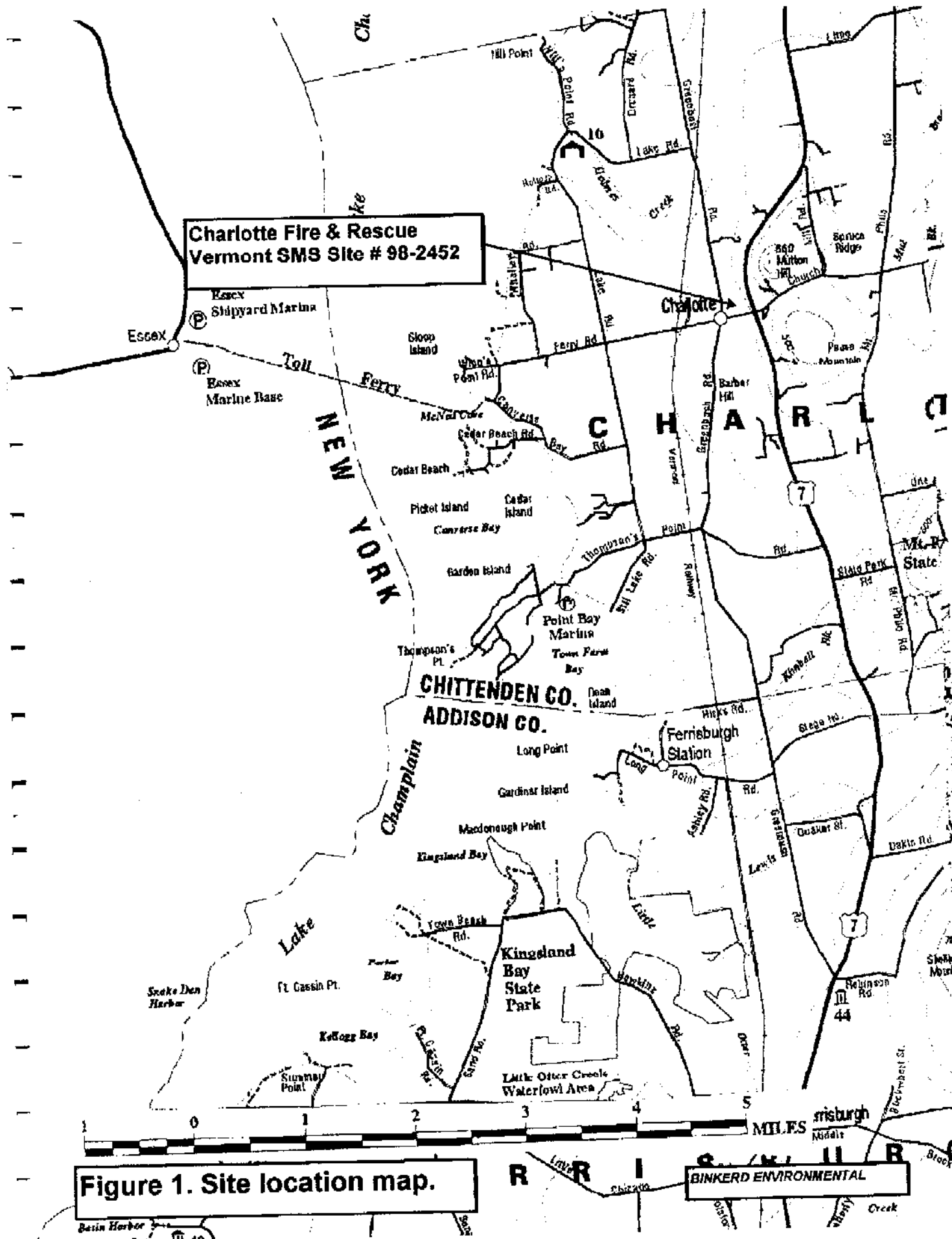
Based on the site characteristics documented in this report and since no hydrocarbon contamination was detected by laboratory measurements in four strategically placed monitoring wells, a pond surface water sample, and two water supply wells, no additional monitoring or remediation at this site is necessary.

8.0 REFERENCES

3 November 1998 . UST Closure Inspection, Site Assessment, Charlotte Fire and Rescue Services, Inc., Charlotte, VT, Griffin International, Inc.

13 January 1999. Letter from Mr. Chuck Schwer, Supervisor, Sites Management Section, to Mr. Christopher W. Davis, Chief, Charlotte Fire Department.

USDA. 1974. Soil Survey of Chittenden County, Vermont. United States Department of Agriculture, Soil Conservation Service, Issued January 1974.



Scale: 1:25 000; 1 centimeter
on the map represents 250
meters on the ground

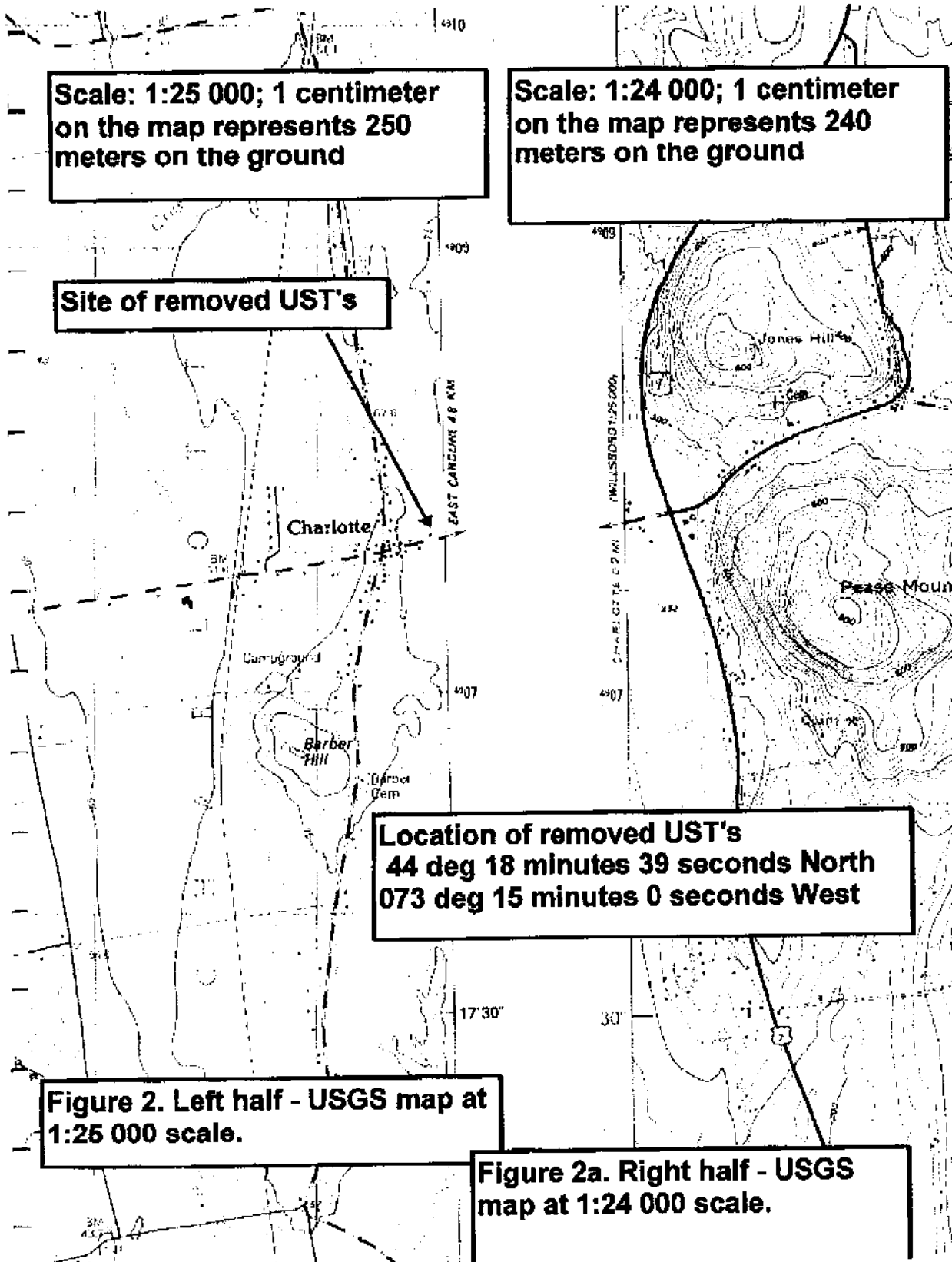
Scale: 1:24 000; 1 centimeter
on the map represents 240
meters on the ground

Site of removed UST's

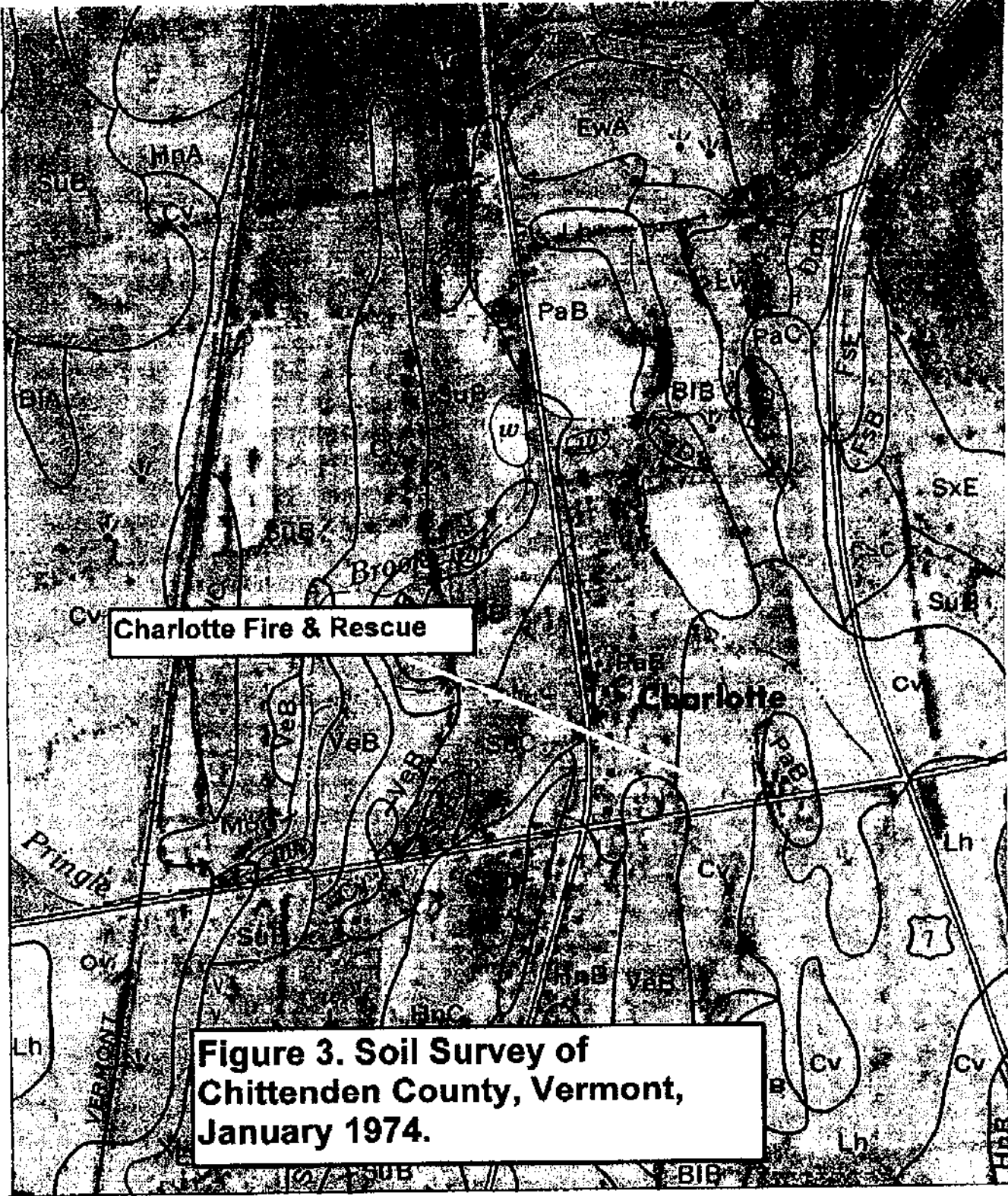
Location of removed UST's
44 deg 18 minutes 39 seconds North
073 deg 15 minutes 0 seconds West

Figure 2. Left half - USGS map at
1:25 000 scale.

Figure 2a. Right half - USGS
map at 1:24 000 scale.



Scale 1:
1000
2000
3000
4000
5000
VERMONT
Pringle



Charlotte Fire & Rescue

**Figure 3. Soil Survey of
Chittenden County, Vermont,
January 1974.**

(Joins sheet 64)

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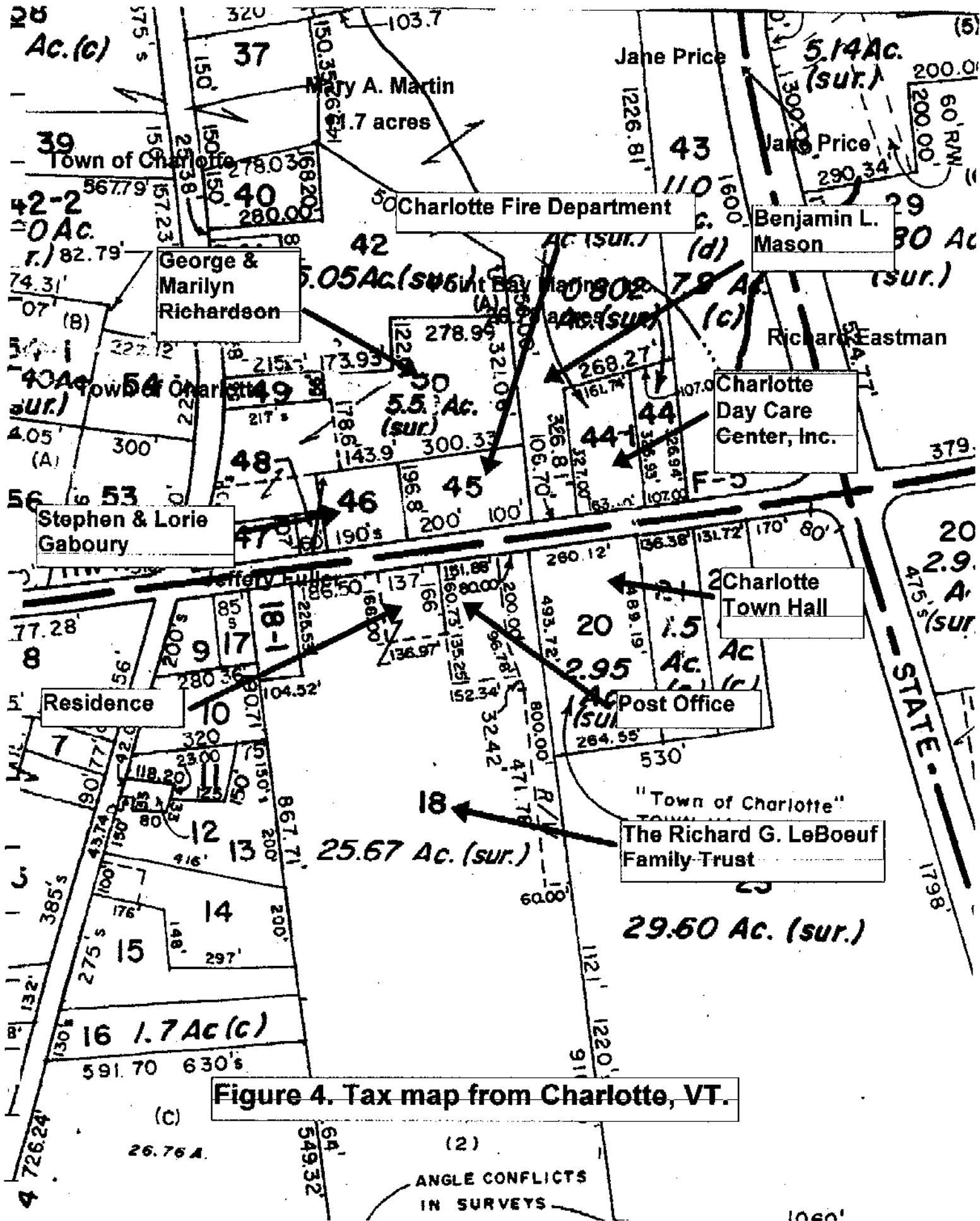
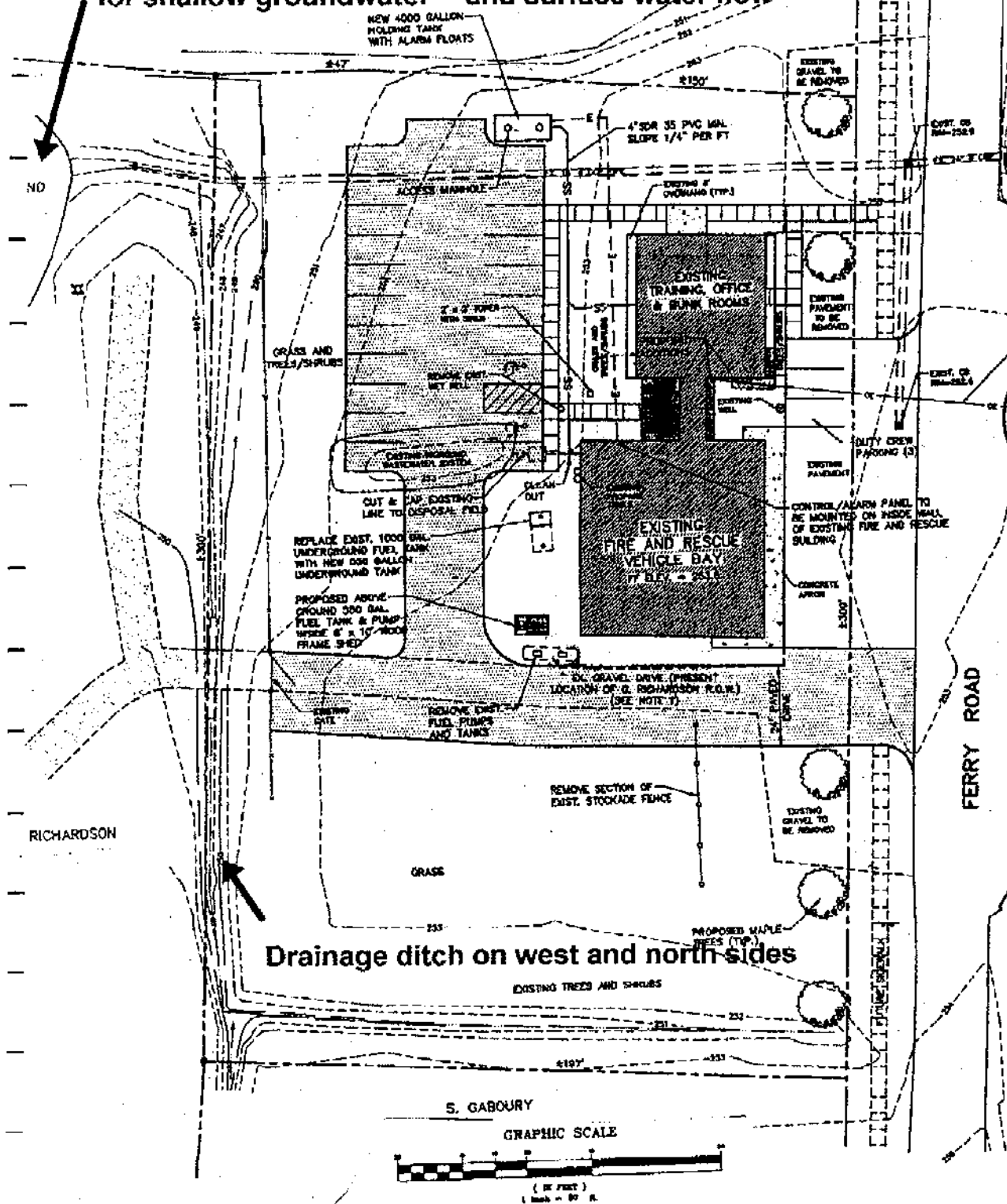


Figure 5. General site plan with ground surface contours.

North

Pond is the receptor

for shallow groundwater and surface water flow



UNDERGROUND STORAGE TANK PERMANENT CLOSURE FORM

Vermont Agency of Natural Resources, Department of Environmental Conservation, Waste Management Division
103 South Main Street, West Building, Waterbury, Vermont 05671-0404, Telephone: (802) 241-3888

Agency Use Only
Date of scheduled Activity: 12/1/98 Facility ID: 100 Closing: 12/1/98 Piping: 12/1/98 System: 12/1/98
DEC Initials: SMS DEC evaluator: 12/1/98

Section A. Facility Information:

Name of facility: MACTEC FILL AND SERVICE, SERVICE, INC. Number of employees: 1
Street address: 100 FERRY ROAD Town/city: CHAMBERS VT 05441
Owner of UST(s) to be closed: MACTEC FILL AND SERVICE, INC. Contact (if different than owner): MR. CAROL PHELPS
Mailing address of owner: 100 FERRY ROAD, CHAMBERS, VT 05441
Telephone number of owner: 1-802-985-9218 Contact telephone #: 1-802-985-9218

Section B. UST Closure Information: (please check one)

Reason for initiating UST closure: ☒ Suspected Leak ☐ Liability ☐ Replacement ☐ Abandoned

USTs (piping is considered a part of UST system) undergoing permanent closure. Include condition of USTs

UST #	Product	Size (gallons)	Tank age	Tank Condition	Piping age	Piping condition
1	Diesel	550	± 14 yrs	Good	± 14 yrs	Good
2	Diesel	550	± 14 yrs	Good	± 14 yrs	Good

Which tanks, if any, will be closed in-place: USTs# N/A Authorized by: 1/1 Date: 1/1
Disposal/destruction of removed UST(s): Location SCAR Method CR Date: 12/20/98
Amount (gal.) and type of waste generated from USTs: 80 Gallons Liquid
(tank contents are hazardous wastes unless recovered as usable product)
Tank cleaning company (must be trained in confined space entry) MACTEC FILL
Certified hazardous waste hauler: ENVIRONMENTAL PRODUCTS Generator ID number: VT P 00000 8799
NO SERVICES

Section C. Initial site characterization:

Work in this section must be completed by a professional environmental consultant or hydrogeologist with experience in environmental sampling for the presence of hazardous materials. A full report from the consultant must accompany this form.

Excavation information: (some tank pulls require more than one excavation)

Tank # and Excavation (A,B,C,etc)	Depth (ft)	Excavation size(ft ²)	Peak PID reading	Depth of Peak (ft)	Avg PID reading	Bedrock Depth (ft)	Groundwater encountered? (y/n) and at depth (ft)	Soil type
1A	7	230	35.0	7	11.2	unknown	4-4ft	Clay
2B	7	230	35.3	7	11.2	unknown	4-4ft	Clay

Dig Safe Number: 434 101 318

PID Information:

Make: 2020 Model: 2020 Calibration information (date, time, gas): 10-20-96 7:45am T10

Locate all readings and samples on site diagram

Number of soil samples collected for laboratory analysis? 0 results due date 1/1
Have any soils been polyencapsulated on site? Yes (#yds) PID range above zero --- No X
Have any soils been transported off site? Yes list amount (yds): No X
Location transported to: DEC official who approved
Amount of soils backfilled(yds): 100 PID range above zero 0.5 - 25.8
Have limits of contamination been defined? Yes No No X
Is there any other known contamination on-site? Yes No No X Comments: ---

Free Phase product encountered? Yes thickness sheen X No ---

Groundwater encountered? Yes X depth(ft) 4 No ---

Are there existing monitoring wells on-site? Yes how many: (locate on site diagram) No X

Have new monitoring wells been installed? Yes how many: (locate on site diagram) No X

Samples obtained from monitoring wells for lab analysis? Yes results due date 1/1 No X

Is there a water supply well on site? Yes X (check type: shallow rock X spring ---) No ---

Number of public water supply wells are located within a 0.5 mile radius? 0 min. distance (ft.): ---

Number of private water supply wells located within a 0.5 mile radius? --- min distance (ft.): ---

Receptors impacted? X soil --- indoor air --- ambient air X groundwater --- surface water --- water supply

Signature of Environmental Consultant

11/3/98
Date of signature

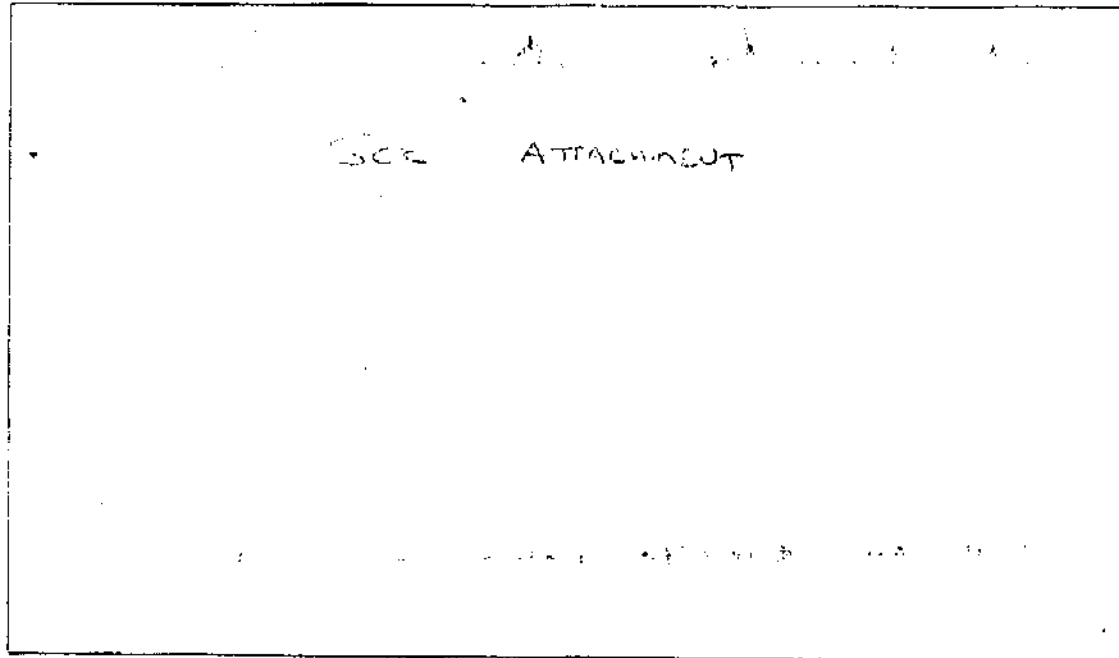
Company:

Telephone #:

Date of Closure: 10/20/98 Date of Assessment 1/1/99

Return form along with complete narrative report and photographs to the Department of Environmental Conservation (DEC), Underground Storage Tank Program within 72 hours of closure.

Site diagram



This Closure Form may only be issued for the facility and the date indicated at top of page 1. Changes in the scheduled closure date should be phoned in at least 48 hours in advance. Both the yellow and white copies of this form must be returned to the address on the top of page 1 of this form; the pink copy should be retained by the UST owner. A written report from an environmental consultant covering all aspects of closure and site assessment, complete with photographs and any other relevant data, must accompany this form. All procedures must be conducted by qualified personnel, to include training required by 29 CFR 1910.120. Documentation of all methods and materials used must be adequate. All work must be performed in compliance with DEC policy "UST Closure and Site Assessment Requirements" as well as all applicable statutes, regulations, and additional policies. The DEC may reject inadequate closure forms and reports.

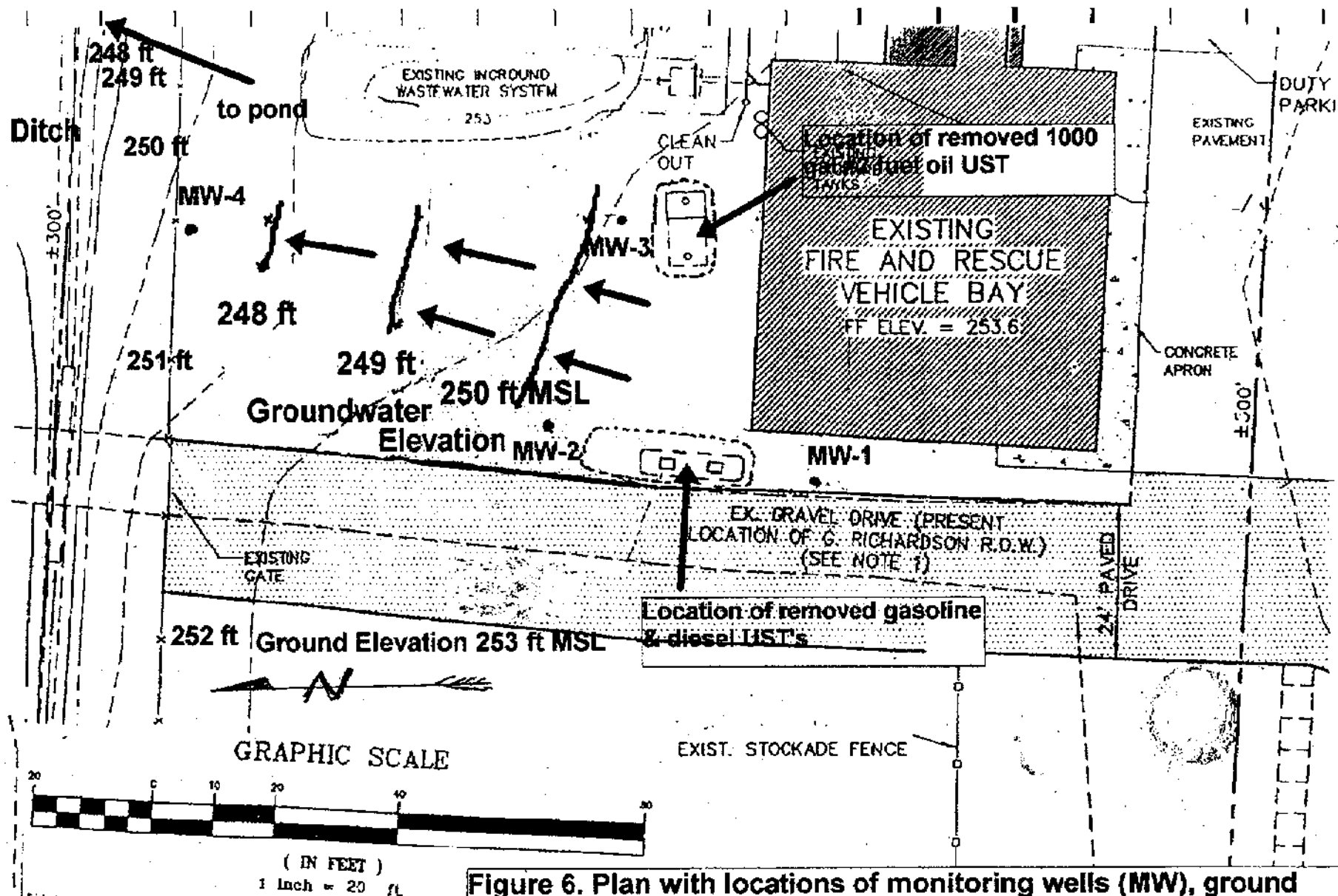


Figure 6. Plan with locations of monitoring wells (MW), ground contours, and groundwater elevations on 16 May 1999.

Date 5/6/99

Scale 1" = 20'

Project No. 97146

CA

CIVIL ENGINEERING ASSOCIATES, INC.
SHELBURNE, VERMONT



November 3, 1998

Ms. Susan Thayer
State of Vermont DEC
Management and Prevention Section
103 South Main Street
Waterbury, Vermont 05671-0404

RE: UST Closure Inspection at Charlotte Fire and Rescue Services, Inc., Charlotte, VT

Dear Ms. Thayer:

On October 30, 1998, personnel from Griffin International, Inc. conducted a closure inspection of two (2) 550 gallon underground storage tanks (USTs) at the Charlotte Fire and Rescue Services Building located at 170 Ferry Road, in Charlotte, Vermont. The USTs were owned by Charlotte Fire and Rescue Services Inc., contact: Mr. Christopher W. Davis. The USTs were removed by MacIntyre Fuels of Middlebury, Vermont. Waste was removed from and the USTs subsequently cleaned by MacIntyre Fuels personnel but transported and disposed of off-site by Environmental Products and Services of Burlington, Vermont. One (1) other UST is known to exist at the site. This UST (a 1,000 gallon capacity No. 2 fuel oil UST) is located in a separate tank field.

The USTs removed on October 30, 1998 were located approximately 3 feet north of the west side of the building. The USTs removed were a 550 gallon capacity, single wall steel tank used for the storage of gasoline, and a 550 gallon capacity, single wall steel tank used for the storage of diesel fuel. The USTs are estimated to be approximately 14 years old. The USTs were in good condition with no rust or pitting.

In the excavation of the USTs, from the ground surface to 1 foot below grade, soils consisted of dry, brown medium sand fill. From 1 to 7 feet below grade, at the limits of the excavation, soils consisted of damp silt and clay. Groundwater was present at approximately 4 feet below grade. A fine sheen was present on the surface of the groundwater. No monitoring wells exist at this site.

Eight (8) soil samples were collected from areas excavated around the USTs, from below the USTs, and from the limits of the excavation. The samples were placed in sample bags, and the head spaces of the bags were screened for volatile organic compounds (VOCs) with a Photovac Model 2020 PhotoIonization Detector (PID) equipped with a 10.6 electron-volt lamp and calibrated with isobutylene, benzene reference. VOC concentrations detected ranged from 0.5 to 35.8 parts per million (ppm). The highest VOC concentrations (35.8 ppm) were below the UST that was used for the storage of diesel fuel. VOC concentrations were generally higher in the south end of the excavation and were generally lower at the north side of the excavation.

Approximately 60 cubic yards of contaminated and clean soils were backfilled into the excavation.

The site is served by a private supply well located at the far northeast side of the property. Several supply wells are located with one-half mile of the site.

In conclusion, petroleum contamination was present in the excavation of the USTs. The extent of the contamination was not defined.

Please find as attachments, the State of Vermont Tank Closure Form, Site Diagram, and photographs of the USTs and excavation.

Any questions regarding this UST Closure Report should be directed to the undersigned at (518) 562-4666.

Respectfully Submitted,



Leonard R. Doughty Jr.
Environmental Hygienist

Attachments: State of Vermont Closure Forms, Site Diagram, and Photos of the USTs and Excavation

cy: Mr. Christopher W. Davis, Fire Chief, Town of Charlotte, VT
Mr. Doug Conc, MacIntyre Fuels

Griffin File #99841383

UNDERGROUND STORAGE TANK PERMANENT CLOSURE FORM

Vermont Agency of Natural Resources, Department of Environmental Conservation, Waste Management Division
103 South Main Street, West Building, Waterbury, Vermont 05671-0404, Telephone: (802) 241-3888

Agency Use Only

Date of scheduled Activity 5/11/99 Facility ID # 210690 Closing: Leak, piping, system
DEC initials: ST SMS # DEC evaluator:

Section A. Facility Information:

Name of facility: CHARLOTTE FIRE + RESCUE Number of employees: NA
Street address: 170 FERRY ROAD Town/city: CHARLOTTE, VT 05445
Owner of UST(s) to be closed: SAME AS ABOVE Contact (if different than owner): CHRISTOPHER W. DAVIS
Mailing address of owner: SAME
Telephone number of owner: 802 985 9218 Contact telephone #: 802 985 8051

Section B. UST Closure Information: (please check one)

Reason for initiating UST closure: Suspected Leak Liability Replacement X Abandoned

USTs (piping is considered a part of UST system) undergoing permanent closure. Include condition of USTs

UST #	Product	Size (gallons)	Tank age	Tank Condition	Piping age	Piping condition
<u>3</u>	<u>#2 Fuel Oil</u>	<u>1000</u>	<u>25</u>	<u>GOOD/EXL</u>	<u>25</u>	<u>GOOD/EXL</u>

Which tanks, if any, will be closed in-place: USTs# NA Authorized by: Date:
Disposal/destruction of removed UST(s): Location SCRAP Method EXT Date:
Amount (gal.) and type of waste generated from USTs: 50 gal Liquid
(tank contents are hazardous wastes unless recovered as usable product)
Tank cleaning company (must be trained in confined space entry) T.L. BOISE EXCAVATING, INC.
Certified hazardous waste hauler: SAME Generator ID number: KTP060008799

Section C. Initial site characterization:

Work in this section must be completed by a professional environmental consultant or hydrogeologist with experience in environmental sampling for the presence of hazardous materials. A full report from the consultant must accompany this form.

Excavation information: (some tank pulls require more than one excavation)

Tank(s) # and Excavation (A,B,C,etc)	Depth (ft)	Excavation size (ft ²)	Peak PID reading	Depth of Peak (ft)	Avg PID reading	Bedrock Depth (ft)	Groundwater encountered? (y/n) and at depth (ft)	Soil type
<u>3</u>	<u>8</u>	<u>60</u>	<u>4.1</u>	<u>4.1</u>	<u>1.5</u>	<u>UNKNOWN</u>	<u>NO</u>	<u>SILT/CLAY</u>

Dig Safe Number: 19999 19 05575

PID information:

Make: HNU Model: DL Calibration information (date, time, gas): 5/7/99, 08:37 AM, ISO

Locate all readings and samples on site diagram

Number of soil samples collected for laboratory analysis? 0 results due date

Have any soils been polyencapsulated on site? Yes (#yds) PID range above zero No X

Have any soils been transported off site? Yes list amount (yds): No X

Location transported to: DEC official who approved

Amount of soils backfilled (yds): 5 PID range above zero 0.8 - 4.1

Have limits of contamination been defined? Yes X No 0.8 to 4.1, avg 1.5 ppm

Is there any other known contamination on site? Yes X No Comments: UNDER INVESTIGATION

Free Phase product encountered? Yes thickness sheen No X

98-

Facility ID# 2668**Section D: Tanks/Piping Remaining/installed**

Regardless of size, include USTs at site as to *status, e.g. "abandoned", "in use", or "to be installed". (Most installations require permits and advance notice to this office.)

UST#	Product	Size(gallons)	Tank age	*Tank status	Piping age	*Piping Status
<u>NONE</u>						

☒ There are no other tanks at this site.**Section E. Statements of UST closure compliance:**

(must have both signatures or site assessment not complete)

As the party responsible for compliance with the Vermont UST Regulations and related statutes at this facility, I hereby certify that the all of the information provided on this form is true and correct to the best of my knowledge.

Christopher W. DavisCHIEF, CHARLOTTE FIRE DEPT.

Signature of UST owner or owner's authorized representative

6/8/99

Date of signature

As the environmental consultant on site, I hereby certify that the site assessment requirements were performed in accordance with DEC policy and regulations, and that information which I have provided on this form is true and correct to the best of my knowledge.

Roger C. Birkland

Signature of Environmental Consultant

6/1/99

Date of signature

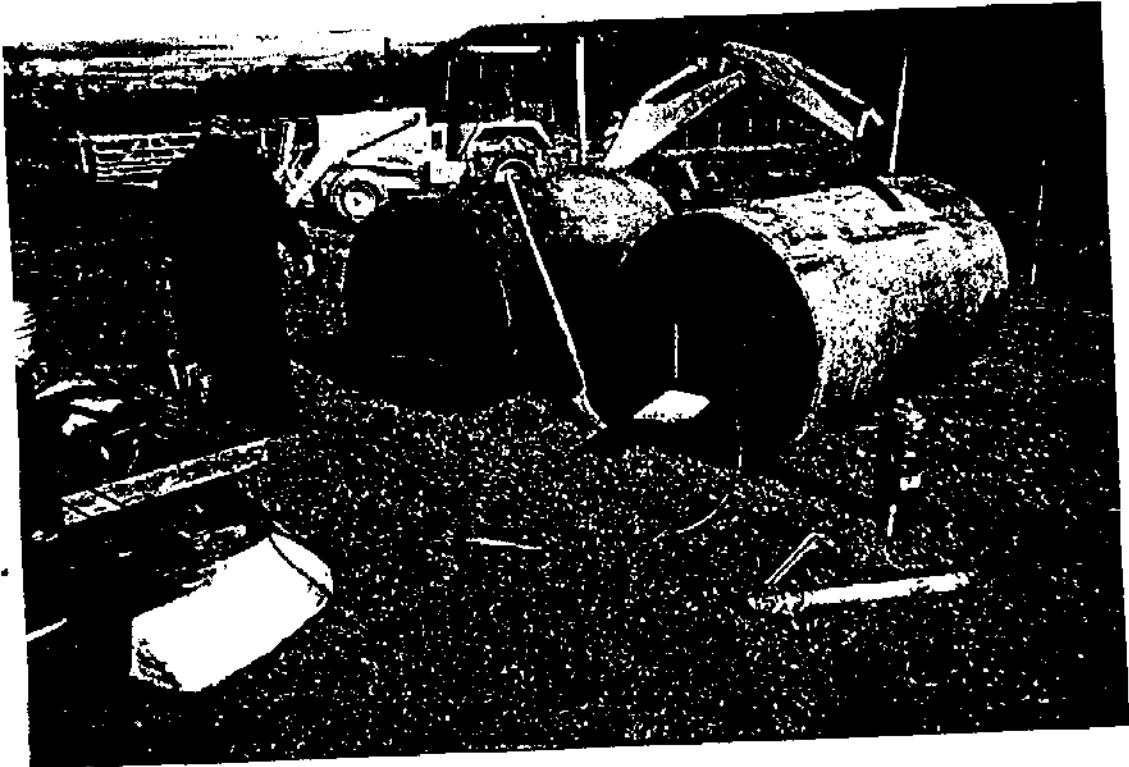
Company: BINKERD ENVIRONMENTALTelephone #: 802 238 6686Date of Closure: 5/7/99Date of Assessment 5/2/99

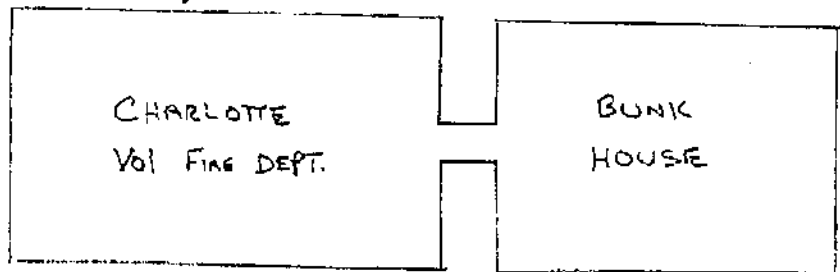
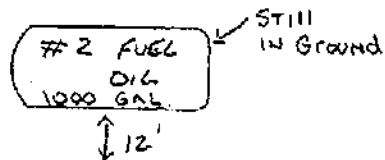
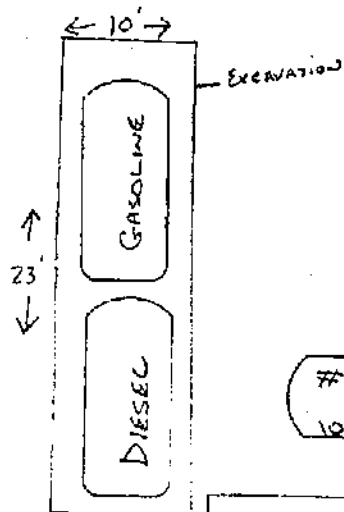
Return form along with complete narrative report and photographs to the Department of Environmental Conservation(DEC), Underground Storage Tank Program within 72 hours of closure.

Site diagramSEE ATTACHMENT #1 # ESA REPORT

2 adjacent water supply wells sampled
& 4 on site monitoring wells: NOTHING
Found by 8021 B & TPH.

UST Prepared For Cleaning





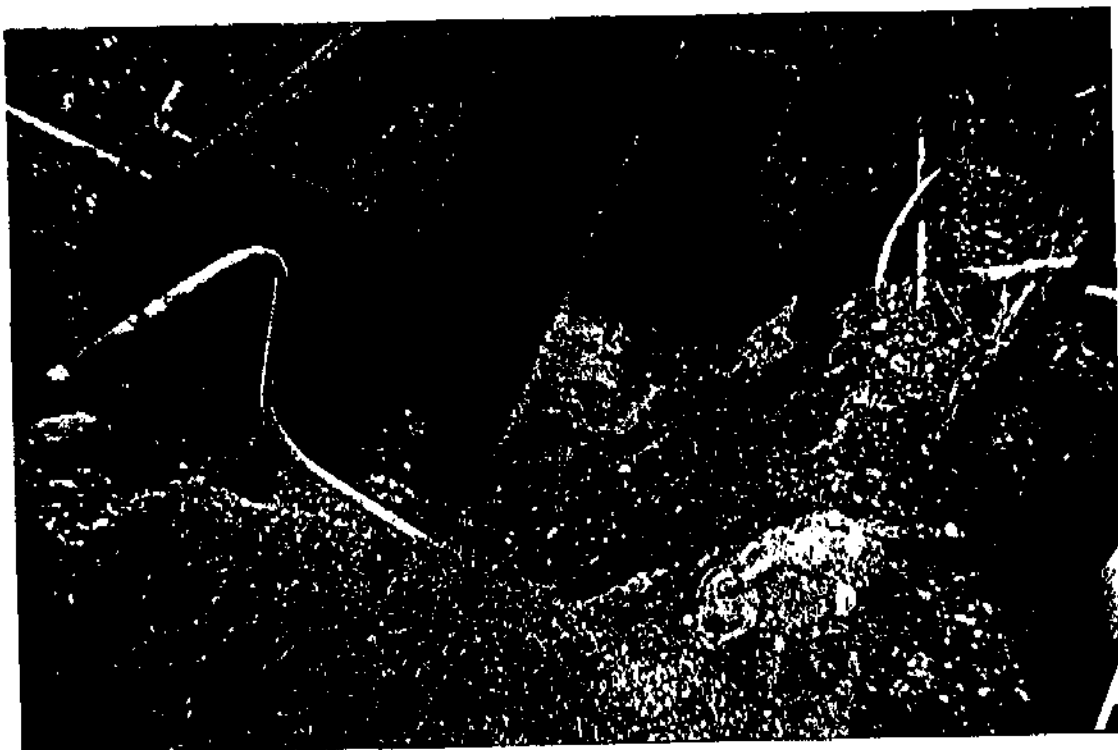
FENCE

FERRY ROAD

Excavation After Removal of USTs



Groundwater in Excavation (Note Sheen)





Could NOT get Fax Through,
So I Placed in Mail.
LJR

Po. Box 943, Williston, Vermont 05495
Phone: (802) 865-4288

Date: 2-23-99 Fax Number (802) 865-4288

FAX COVER SHEET

Please deliver the following pages to:

Name: Chris Davis

Fax #: 425 - 6515

Company: Charlotte Fire Department

From: Laurie Reed

Total Number of pages including cover page: 1

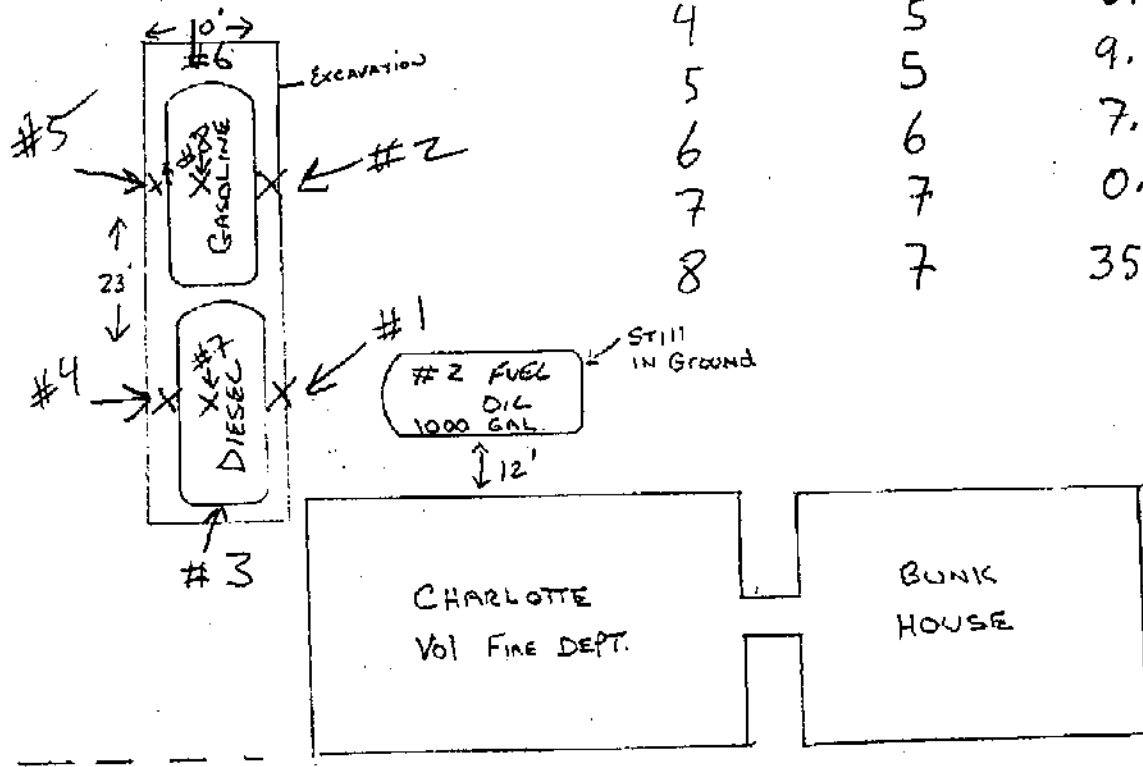
Original in Mail: No

Additional Message:

Please accept our apology for excluding this information from the UST
Closure Report.

Sincerely,

Laurie T. Reed,
Senior Geologist



Sample #	Depth (ft)	PID (ppm)
1	4	0.5
2	4	34.2
3	4.5	1.1
4	5	0.9
5	5	9.4
6	6	7.6
7	7	0.7
8	7	35.8

Annotated by L. Reed, 2-23-99 : Added Soil Screening Results
 10-30-98 UST Removal Inspection
 Ferry Road



State of Vermont

RECEIVED
1-19-99

Department of Fish and Wildlife
Department of Forests, Parks and Recreation
Department of Environmental Conservation
State Geologist
RELAY SERVICE FOR THE HEARING IMPAIRED
1-800-253-0191 TDD>Voice
1-800-253-0195 Voice>TDD

AGENCY OF NATURAL RESOURCES
Department of Environmental Conservation

Waste Management Division
103 South Main Street/West Office
Waterbury, Vermont 05671-0404
(802) 241-3888
FAX (802) 241-3296

January 13, 1999

Mr. Christopher Davis
Charlotte Fire & Rescue
176 Ferry Road
Charlotte, Vermont 05445

RE: Petroleum Contamination at Charlotte Fire & Rescue
Charlotte, Vermont
SMS Site # 98-2452

Dear Mr. Davis:

The Sites Management Section (SMS) has received the Underground Storage Tank (UST) closure site report outlining subsurface conditions for the above referenced site. The fieldwork was conducted by Griffin International, Inc. on October 30, 1998. This report, dated November 3, 1998 and summarizes the degree and extent of contamination encountered. The USTs removed include:

- UST #1 - 550 gallon diesel UST
- UST #2 - 550 gallon gasoline UST

During the site activities, soils screened had concentrations up to 35 parts per million (ppm) as measured by a photoionization detector (PID). The peak PID reading was measured at a depth of 7 feet below ground surface (fbgs) in the excavation. The limits of soil contamination were not defined. All soil was used for backfill at the conclusion of the program.

Site soils consisted of clay. Groundwater was encountered at a depth of approximately 4 fbgs. Groundwater was observed to contain a sheen.

The Charlotte Fire & Rescue was inspected for potentially sensitive receptors. The receptors potentially affected include groundwater, basements of adjacent buildings, nearby surface water, and public or private drinking water wells which are located within the vicinity of the site.

Based on the report information, the SMS has determined that additional work is necessary at the site in order to determine the severity of contamination present. Due to the possibility of contaminant impact to nearby receptors, the SMS is requesting that Charlotte Fire & Rescue retain the services of a qualified environmental consultant to perform the following:

- ☐ Further define the degree and extent of contamination to the soil.
- ☐ As appropriate, determine if the airspace beneath the site building(s) or site adjacent buildings has been impacted by the release using a PID. Wall and floor construction as well as susceptibility to vapor migration should be noted. If the ambient airspace has been impacted, SMS requests that confirmatory sampling and laboratory analyses be performed using EPA Method TO-2.
- ☐ Determine the degree and extent of contamination, if any, to groundwater. A sufficient number of monitoring sites should be installed to adequately define the severity of contamination. All groundwater samples taken should be analyzed for TPH, BTEX and MTBE compounds. At sites with nearby water supply sources, data should be collected to determine the hydrologic relationship of the contaminated area to the water supply source. Pumping influences should be considered in the evaluation.

- ☐ Assess the potential for sensitive receptors to be impacted by the contamination. Base this update on all available information. This assessment should include basements of adjacent buildings, nearby surface water, any public or private drinking water wells which are located within the vicinity of the site, wetlands, sensitive ecologic areas, outdoor or indoor air, sewers, or utility corridors. If any water supplies appear at risk from this contamination, they should be sampled and analyzed for TPH, BTEX and MTBE compounds.
- ☐ Determine the need for a long term treatment and/or monitoring plan which addresses the groundwater contamination.
- ☐ Submit to the SMS a summary report which outlines the work performed, as well as provides conclusions and recommendations. Included should be analytical data, a site map showing the location of any potential sensitive receptors, stockpiled soils and monitoring or sample locations, an area map, detailed well logs (if appropriate) and a groundwater contour map.
- ☐ With the Workplan or Expressway notification, please submit a site location map at an approximate scale of 1:24000 showing the location of the site. The map should also contain a scale, a north arrow, the SMS site number, and a citation of the source map. The purpose of this map is to enable the SMS to enter the site location into a Geographical Information Systems database.

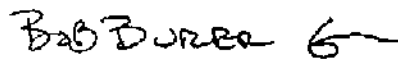
Please have your consultant submit a preliminary work plan and cost estimate or a site investigation expressway notification form within fifteen days of your receipt of this letter so that it may be approved prior to the initiation of onsite work. Enclosed please find a list of consultants who perform this type of work in the area as well as the brochure "Selecting Your UST Cleanup Contractor," which will help you in choosing an environmental consultant.

Based on current information, the underground storage tanks at Charlotte Fire & Rescue are eligible for participation in the Petroleum Cleanup Fund (PCF). You must provide written proof to the SMS that you hold no other applicable insurance in order to receive reimbursement from the PCF. The owner or permittee must pay for the removal and/or repair of the failed tank(s), and for the initial \$10,000.00 of the cleanup. The fund will reimburse the tank owner or permittee for additional eligible cleanup costs of up to \$1 million. All expenditures must be pre-approved by the Agency or performed in accordance with the "Site Investigation Guidance" expressway program. Please refer to the enclosed guidance document titled, "Procedures for Reimbursement from the Petroleum Cleanup Fund" for additional information concerning the PCF.

The Secretary of the Agency of Natural Resources reserves the right to seek cost recovery of fund monies spent at the Charlotte Fire & Rescue site if the Secretary concludes that Charlotte Fire & Rescue is in significant violation of the Vermont Underground Storage Tank Regulations or the Underground Storage Tank statute (10 V.S.A., Chapter 59).

We realize that this is a lot to absorb and respond to. We are here to help make this process as effective and uncomplicated as possible. Please review the enclosed documents and call me with any questions you may have. I can be reached at (802) 241-3876.

Sincerely,



Chuck Schwer, Supervisor
Sites Management Section

Enclosures (3)

cc: Charlotte Selectboard w/o enclosure
Charlotte Health Officer w/o enclosure
DEC Regional Office w/o enclosure (transmitted electronically) ✓
Leonard Doughty, Griffin International, Inc. w/o enclosure (transmitted electronically) ✓

BINKERD ENVIRONMENTAL

664 HILLS POINT ROAD • CHARLOTTE, VERMONT 05445 • (802) 425-4939 FAX (802) 425-5939

Friday, April 30, 1999

Mr. Jason Gaboury
212 Ferry Road
Charlotte, VT 05445

Dear Mr. Gaboury:

Subject: Water sample results

Please be advised that no compounds that were analyzed for were detected in the drinking water sample that I collected from your home on 13 April 1999. A copy of the results are enclosed.

If you have any questions please call me.

Sincerely,
BINKERD ENVIRONMENTAL

Roger C. Binkerd, P.E.
President

Enclosures
Copy to Chris Davis, Chief, Charlotte Volunteer Fire Department

FILE

COPY

BINKERD ENVIRONMENTAL

664 HILLS POINT ROAD • CHARLOTTE, VERMONT 05445 • (802) 425-4939 FAX (802) 425-5939

FILE
COPY

Friday, April 30, 1999

Charlotte Children's Center
P.O. Box 143
Charlotte, VT 05445

Subject: Water sample results

Dear Sir or Madam;

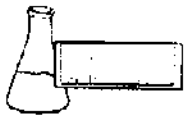
Please be advised that no compounds that were analyzed for were detected in the drinking water sample that I collected from the Charlotte Children's Center on 13 April 1999. A copy of the results are enclosed.

If you have any questions please call me

Sincerely,
BINKERD ENVIRONMENTAL

Roger C. Binkerd, P.E.
President

Enclosure
Copy to Mr. Chris Davis, Chief, Charlotte Volunteer Fire Department.



ENDYNE, INC.

Laboratory Services

32 James Brown Drive
Williston, Vermont 05495
(802) 879-4333
FAX 879-7103

LABORATORY REPORT

CLIENT: Binkerd Environmental
PROJECT: Charlotte Fire & Rescue
REPORT DATE: April 27, 1999

ORDER ID: 1967
DATE RECEIVED: April 13, 1999

Enclosed please find the results of the analyses performed for the samples referenced on the attached chain of custody. Different groups of analyses may be reported under separate cover.

All samples were prepared and analyzed by requirements outlined in the referenced methods and within the specified holding times.

All instrumentation was calibrated with the appropriate frequency and verified by the requirements outlined in the referenced methods.

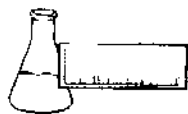
Blank contamination was not observed at levels affecting the analytical results.

Analytical method precision and accuracy was monitored by laboratory control standards which included matrix spike, duplicate and quality control analyses. These standards were determined to be within established laboratory method acceptance limits, unless otherwise noted.

Reviewed by,

Harry B. Locker, Ph.D.
Laboratory Director

enclosures



ENDYNE, INC.

Laboratory Services

32 James Brown Drive
Williston, Vermont 05495
(802) 879-4333
FAX 879-7103

LABORATORY REPORT

CLIENT: Binkerd Environmental
PROJECT: Charlotte Fire & Rescue
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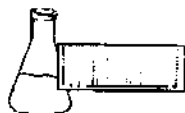
ORDER ID: 1967
DATE RECEIVED: April 13, 1999
SAMPLER: RB
ANALYST: 725

Ref. Number: 136922 Site: Charlotte Child. Ctr. Date Sampled: April 13, 1999 Time: 11:05 AM

<u>Parameter</u>	<u>Result</u>	<u>Unit</u>	<u>Method</u>	<u>Analysis Date</u>
MTBE	< 2.0	ug/L	SW 8021B	4/26/99
Benzene	< 1.0	ug/L	SW 8021B	4/26/99
Toluene	< 1.0	ug/L	SW 8021B	4/26/99
Ethylbenzene	< 1.0	ug/L	SW 8021B	4/26/99
Xylenes, Total	< 2.0	ug/L	SW 8021B	4/26/99
1,3,5 Trimethyl Benzene	< 1.0	ug/L	SW 8021B	4/26/99
1,2,4 Trimethyl Benzene	< 1.0	ug/L	SW 8021B	4/26/99
Naphthalene	< 5.0	ug/L	SW 8021B	4/26/99
UIP's	0.		SW 8021B	4/26/99
Surrogate 1	111.0%	%	SW 8021B	4/26/99

Ref. Number: 136923 Site: Jason Date Sampled: April 13, 1999 Time: 1:30 AM

<u>Parameter</u>	<u>Result</u>	<u>Unit</u>	<u>Method</u>	<u>Analysis Date</u>
MTBE	< 2.0	ug/L	SW 8021B	4/26/99
Benzene	< 1.0	ug/L	SW 8021B	4/26/99
Toluene	< 1.0	ug/L	SW 8021B	4/26/99
Ethylbenzene	< 1.0	ug/L	SW 8021B	4/26/99
Xylenes, Total	< 2.0	ug/L	SW 8021B	4/26/99
1,3,5 Trimethyl Benzene	< 1.0	ug/L	SW 8021B	4/26/99
1,2,4 Trimethyl Benzene	< 1.0	ug/L	SW 8021B	4/26/99
Naphthalene	< 5.0	ug/L	SW 8021B	4/26/99
UIP's	0.		SW 8021B	4/26/99
Surrogate 1	107.0%	%	SW 8021B	4/26/99



ENDYNE, INC.

Laboratory Services

32 James Brown Drive
Williston, Vermont 05495
(802) 879-4333
FAX 879-7103

LABORATORY REPORT

CLIENT: Binkerd Environmental
PROJECT: Charlotte Fire & Rescue
REPORT DATE: April 27, 1999

ORDER ID: 1967
DATE RECEIVED: April 13, 1999
SAMPLER: RB
ANALYST: 725

Ref. Number: 136922 Site: Charlotte Child. Ctr. Date Sampled: April 13, 1999 Time: 11:05 AM

<u>Parameter</u>	<u>Result</u>	<u>Unit</u>	<u>Method</u>	<u>Analysis Date</u>
TPH 8015 GRO	< 0.10	mg/L	SW 8015B	4/26/99

Ref. Number: 136923 Site: Jason Date Sampled: April 13, 1999 Time: 1:30 AM

<u>Parameter</u>	<u>Result</u>	<u>Unit</u>	<u>Method</u>	<u>Analysis Date</u>
TPH 8015 GRO	< 0.10	mg/L	SW 8015B	4/26/99

2019 31044

[illegible]

Relinquished by: Signature <i>[Signature]</i>	Received by: Signature <i>[Signature]</i>	Date/Time <i>4/12/99 4:30pm</i>
Relinquished by: Signature	Received by: Signature	Date/Time

New York State Project: Yes _____ No _____

Requested Analyses

[illegible]



ENDYNE, INC.

Laboratory Services

32 James Brown Drive
Williston, Vermont 05495
(802) 879-4333
FAX 879-7103

REPORT OF LABORATORY ANALYSIS

CLIENT: Binkerd Environmental

ORDER ID: 2366

PROJECT NAME: Charlotte Fire & Rescue

REF.#: 138,579 - 138,583

REPORT DATE: May 28, 1999

DATE SAMPLED: May 16-17, 1999

Enclosed please find the results of the analyses performed for the samples referenced on the attached chain of custody. Chain of custody indicated sample preservation with HCl. Sample 138582 was improperly sampled as the vial contained headspace. Sample 138581 was analyzed for the water fraction of the sample only.

All samples were prepared and analyzed by requirements outlined in the referenced method and within the specified holding times. All instrumentation was calibrated with the appropriate frequency and verified by the requirements outlined in the referenced method. Blank contamination was not observed at levels affecting the analytical results.

Analytical method precision and accuracy was monitored by laboratory control standards which included matrix spike, duplicate and quality control analyses. These standards were determined to be within established laboratory method acceptance limits.

Individual sample performance was monitored by the addition of surrogate analytes to each sample. All surrogate recovery data was determined to be within laboratory QA/QC guidelines unless otherwise noted.

Reviewed by,

Harry B. Locker, Ph.D.

Laboratory Director

enclosures

**ENDYNE, INC.****Laboratory Services**32 James Brown Drive
Williston, Vermont 05495
(802) 879-4333
FAX 879-7103**EPA METHOD 8021B--PURGEABLE AROMATICS**CLIENT: Binkerd Environmental
PROJECT NAME: Charlotte Fire & Rescue
CLIENT PROJ. #: Not IndicatedDATE RECEIVED: May 17, 1999
REPORT DATE: May 28, 1999
ORDER ID: 2366

Ref. #:	138,579	138,580	138,581	138,582	138,583
Site:	MW-1	MW-2	MW-3	MW-4	Pond
Date Sampled:	5/16/99	5/16/99	5/16/99	5/16/99	5/17/99
Time Sampled:	10:15	11:00	11:30	10:30	11:30
Sampler:	RB	RB	RB	RB	RB
Date Analyzed:	5/27/99	5/27/99	5/27/99	5/27/99	5/27/99
UIP Count:	>10	>10	>10	>10	0
Dil. Factor (%):	100	100	100	100	100
Surr % Rec. (%):	84	89	126	111	95
Parameter	Conc. (ug/L)	Conc. (ug/L)	Conc. (ug/L)	Conc. (ug/L)	Conc. (ug/L)
MTBE	<10	10.0	<10	<10	<10
Benzene	<1	<1	<1	<1	<1
Toluene	<1	<1	<1	<1	<1
Ethylbenzene	<1	<1	<1	<1	<1
Xylenes	<1	<1	<1	<1	<1
1,3,5 Trimethyl Benzene	<1	<1	<1	<1	<1
1,2,4 Trimethyl Benzene	<1	<1	<1	<1	<1
Naphthalene	<1	<1	<1	<1	<1

Note: UIP = Unidentified Peaks TBQ = Trace Below Quantitation NI = Not Indicated



ENDYNE, INC.

Laboratory Services

32 James Brown Drive
Williston, Vermont 05495
(802) 879-4333
FAX 879-7103

LABORATORY REPORT

CLIENT: Binkerd Environmental

ORDER ID: 2366

PROJECT: Charlotte Fire & Rescue

DATE RECEIVED: May 17, 1999

REPORT DATE: June 8, 1999

SAMPLER: RB

Ref. Number: 138580

Site: MW-2

Date Sampled: May 16, 1999

Time: 11:00 AM

<u>Parameter</u>	<u>Result</u>	<u>Unit</u>	<u>Method</u>	<u>Analysis Date</u>	<u>Analyst</u>
TPH 8015 DRO	< 0.40	mg/l.	SW 8015D	6/4/99	917



CHAIN-OF-CUSTODY RECORD

Birkens Environmenta /

Project Name: <u>CHARLOTTE F & R</u>	Reporting Address: <u>664 HILLS PT. RD</u>	Billing Address: <u>SAME</u>
Site Location: <u>CHARLOTTE, VT</u>	<u>CHARLOTTE, VT</u>	
	<u>05445</u>	
Endyne Project Number: <u>2366</u>	Company: <u>BN INC.</u>	Sampler Name: <u>ROGER BUTLER</u>
	Contact Name/Phone #: <u>ALB/2386686</u>	Phone #: <u>802 238 6686</u>

[illegible]

Relinquished by: Signature <i>[Signature]</i>	Received by: Signature <i>[Signature]</i>	Date/Time <i>5/17/99 @ 1510</i>
Relinquished by: Signature	Received by: Signature	Date/Time

New York State Project: Yes No

Requested Analyses

[illegible]